

Appl. No. 10/560,391  
Reply to Office Action Dated November 7, 2007

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Amendments to the Specification

Please amend the specification as follows:

Page 11, line 21, replace paragraph 'Figure 13 shows ... ;and' with

'Figures 13a, 13b and 13c show further details of one particular implementation of the seventh embodiment of the invention'

Version showing changes:

~~Figure~~ Figures 13a, 13b and 13c shows show further details of one particular implementation of the seventh embodiment of the invention

Page 17, lines 10-29, replace paragraphs 'Figure 13 shows ... of Figure 13.' and Figure 14 shows ... the soft mode.' with

'Figures 13a, 13b and 13c show a particular implementation of the technique generally described in Figure 12 above. In this case, the rigidity of drill-string assembly is increased by the presence of wings 76, 78 extending outwardly from the axial links of the inner shaft 74 (shown in perspective and plan view in Figure 13a), and inwardly from the axial links of the outer shaft 72 respectively (shown in perspective and plan view in Figure 13b). The wings 76, 78 of one shaft extend between the rings 80, 82 of the other shaft. When the two shafts 72, 74 are out of phase by 90°, the wings 76, 78 of one shaft directly support the middle part of the rings 80, 82 of the other and prohibit any displacement of these rings (which means that the shaft cannot bend). This arrangement is shown as configuration A of Figure 13c. When the shafts are rotated by approximately 90°, the wings 76, 78 do not support the mid points of the rings 80, 82 and bending is allowed. This arrangement is shown as configuration B of Figure 13 13c.

Figure 14 shows one implementation of the embodiment of Figures 12 and 13a, 13b and 13c in a drilling system of the general type described in relation to Figure 1 above. In this case, the

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external shaft 84 is formed as several separate segments. As shown in Figure 14, each segment is a few times longer than the bending guide 18. This allows the setting of the drill string assembly into soft mode only when passing over the guide 18 inside the drilling tool. When the drill-string is in straight sections such as in the main bore-hole 10 or in the lateral hole 20, the shaft assembly is set in rigid mode. Normally, only one or two external segments 84' are rotated at a given time to insure the soft mode.'

Version showing changes:

Figure Figures 13a, 13b and 13c shows show a particular implementation of the technique generally described in Figure 12 above. In this case, the rigidity of drill-string assembly is increased by the presence of wings 76, 78 extending outwardly from the axial links of the inner shaft 74 (shown in perspective and plan view in Figure 13a), and inwardly from the axial links of the outer shaft 72 respectively (shown in perspective and plan view in Figure 13b). The wings 76, 78 of one shaft extend between the rings 80, 82 of the other shaft. When the two shafts 72, 74 are out of phase by 90°, the wings 76, 78 of one shaft directly support the middle part of the rings 80, 82 of the other and prohibit any displacement of these rings (which means that the shaft cannot bend). This arrangement is shown as configuration A of Figure 13 13c. When the shafts are rotated by approximately 90°, the wings 76, 78 do not support the mid points of the rings 80, 82 and bending is allowed. This arrangement is shown as configuration B of Figure 13 13c.

Figure 14 shows one implementation of the embodiment of Figures 12 and 13a, 13b and 13c in a drilling system of the general type described in relation to Figure 1 above. In this case, the external shaft 84 is formed as several separate segments. As shown in Figure 14, each segment is a few times longer than the bending guide 18. This allows the setting of the drill string assembly into soft mode only when passing over the guide 18 inside the drilling tool. When the drill-string is in straight sections such as in the main bore-hole 10 or in the lateral hole 20, the shaft assembly is set in rigid mode. Normally, only one or two external segments 84' are rotated at a given time to insure the soft mode.